SOUTHERN CALIFORNIA EDISON
An *EDISON INTERNATIONAL* Company

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May 26, 2006

Docket Clerk
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

RE: 06-03-004

Dear Docket Clerk:

Enclosed for filing with the Commission are the original and five copies of the **REPLY COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON STAFF PROPOSAL FOR CALIFORNIA SOLAR INITIATIVE DESIGN AND ADMINISTRATION 2007-2016** in the above-referenced proceeding.

We request that a copy of this document be file-stamped and returned for our records. A self-addressed, stamped envelope is enclosed for your convenience.

Your courtesy in this matter is appreciated.

Very truly yours,

Amber E. Dean

AED:cr:LAW-#1282083
Enclosures

cc: All Parties of Record
(U 338-E)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues.	))))	Rulemaking 06-03-004 (Filed March 2, 2006)

REPLY COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON STAFF PROPOSAL FOR CALIFORNIA SOLAR INITIATIVE DESIGN AND ADMINISTRATION 2007-2016

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I.

INTRODUCTION

Pursuant to ALJ Duda's April 25, 2006 Ruling Requesting Comment of Staff Proposal for Performance Based Incentives and Other Elements of the California Solar Initiative (CSI), Southern California Edison Company (SCE) submits the following reply to opening comments made by parties concerning the Energy Division's Staff Proposal for California Solar Initiative Design and Administration 2007-2016 (Staff Proposal). Comments submitted by most of the parties reflect broad-based support for encouraging efficient PV system design and installation by moving towards performance-based incentives. There is also broad spectrum of support for a number of SCE's recommendations, including SCE's proposals to:

- Enlist the utilities to administer all aspects of the CSI program in their service territories;
- Lower the kW size threshold between the Expected Performance-Based Buydown (EPBB) and Performance-Based Incentive (PBI) mechanisms; and

- Move fully to a PBI structure in 2007, rather than adopt a "hybrid" phased-in approach.

The performance-oriented structure of CSI implementation proposed in the Staff Report, if modified in accordance with SCE recommendations, will provide a strong foundation for promoting efficient PV solar installations, for achieving the CSI program goals, and for protecting the interests of participating customers and all ratepayers.

Moving beyond the broad structure of the CSI program, a number of parties offer specific implementation proposals that will lessen the effectiveness of CSI implementation or undermine program goals. As stated in the Staff Proposal, the CSI should incentivize the installation of 3,000 MWs of solar while maintaining the program budget. The program should utilize an incentive structure that rewards system output and reduces subsidies over the program duration. Further, the program design should encourage performance gains and spur cost reductions. With an eye towards these principles, SCE offers the following comments in response to parties' specific proposals:[1]

- In proposing changes to the Commission's incentive structure, some parties confuse the CSI with a power purchase arrangement. The Commission should reject various parties' suggestions to structure the PBI incentives as if they were payments for power deliveries through, for example, time differentiated incentives.
- The Commission should not adopt detailed output metering communication requirements or outsource metering and data collection to a third party. Such proposals will unnecessarily increase program costs.
- The Commission should reject parties' proposals to reduce the cost-effectiveness of the program. For example:

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[1] Given the large number of comments, the fact that SCE has not responded to a particular proposal should not be construed as an endorsement or that SCE is indifferent on the point being advanced.

- The Commission should not raise the incentive level or provide higher incentives for retrofit installations. Increasing the incentive level will result in fewer installations within the CSI budget, and/or gross overspending throughout the program term.
- The Commission should not set different incentive levels in different utility service territories.
- The Commission should not lower the benchmark for optimal design and installation to account for poor anticipated output. Lowering the benchmark will reduce the cost-effectiveness of CSI installations and purported ratepayer benefits.
- The Commission should not reduce the benchmark capacity factor for PBI.
- The Commission should not adopt a declining incentive structure solely based on installed MWs. Such a structure will not provide any incentive to reduce installed costs, and may result in an "incentive cliff" at the end of the 10-year program term.

➢ The Commission should adopt a clear and concise method for assigning system rating for purposes of incentive payment and record keeping.

➢ The Commission should not expand the SDREO solar hot water heating pilot to all service territories at this time. Such expansion would be premature and in direct conflict with D.06-01-024.

II.

REPLY COMMENTS

A. There Is a Broad Spectrum of Support For The Major Elements of CSI Implemenation Recommended by SCE

1. Parties Support Utility Administration of the CSI

In its Opening Comments, SCE advocated for administration of all aspects of the CSI in its service territory.[2] Consistent with SCE's comments, there is general consensus among the utilities, the major solar trade organizations, and the Commission's Division of Ratepayer Advocates (DRA) favoring utility administration. These parties cite the utilities' familiarity with large scale customer generation, energy efficiency, and demand response programs, as well as the efficiencies that could be leveraged by "one stop" administration of the program in the utilities' service territories.[3] Parties also note the legal and regulatory roadblocks to establishing a third-party administrative structure, including the Commission's limited recourse in the event a third party program administrator fails to adequately perform.[4] DRA further notes the Commission's increased ability to oversee the utilities as program administrators:

> "The Commission will be able to most effectively oversee the existing IOU's and SDREO as the CSI program administrators without the addition of another new entity. The Commission's role of overseeing program administrators to ensure that the administrators' actions are in the best interest of the CSI program is a complex task. The Commission can best carry out its oversight responsibilities by streamlining the administration structure of the CSI program. Furthermore, allowing the utilities to

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2 SCE Opening Comments, p. 15.

3 *See, e.g.*, PG&E Comments, p. 20 ("Avoiding dispersing these functions among multiple parties would simplify and streamline the process, and PG&E administration of the CSI program will promote coordination, avoid delays, and prevent the applicant from dealing with multiple agencies."); SDG&E Comments, p. 17 (stating that utilities are uniquely qualified to administer the CSI due to synergies with existing infrastructure).

4 PG&E Comments, p. 17. PG&E noted the Commission's review of these issues in the context of third-party administration of Energy Efficiency programs, highlighting that the Commission concluded that these programs were properly administered by the utilities.

> administer the CSI program will allow better coordination with IOU energy efficiency programs."[5]

In addition to these points, CalSEIA, PV Now, and the Vote Solar Initiative (Joint Solar Parties) note the unresolved issues concerning the taxability of rebates issued by third-party administrators. The Joint Solar Parties state:

> "Because of this short time frame – as well as the arguably unrealistic timeframe of establishing a third party administrator by January 1, 2007 even absent the tax uncertainty – and because favorable tax treatment should supersede other administrative considerations, the Joint Solar Parties recommend that the current SGIP administrative structure (i.e., utility administration) be maintained under the CSI at this time for all customer classes and system sizes."[6]

SCE finds significant error with various parties' comments concerning utility administration of the CSI.[7] For example, contrary to Northern California Solar Energy Association's (NCSEA) assertions, SCE has openly and successfully administered the SGIP in its territory since program inception. SCE posts SGIP program budget data in the same manner as other program administrators, including SDREO. Also, as noted in SCE's Opening Comments, SCE's actions are subject to Commission regulation, and are therefore informed by public hearings, workshops, and Commission decisions. Lastly, SCE has established positive relationships with participating customers and has a firm record of supporting renewable energy, including solar technologies. As SCE stated in Opening Comments, SCE is fully committed to administering all aspects of the CSI Program in its territory. SCE has a demonstrated record of administering large scale incentive programs including the Self Generation Incentive Program (SGIP), energy efficiency programs, and demand response initiatives. For these reasons, and all

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5 DRA Comments, p. 2.

6 Joint Solar Parties Comments, p. 32. *See also*, DRA Comments, p. 2 ("DRA is concerned that the unresolved issue of the taxability of rebates issued by third-party administrators will dampen the demand under the CSI program."); PG&E Comments, p. 21 (The Commission should "hold off on creating new non-utility administrators if there is any risk that the recipients could be subject to increased and unwelcome taxes as a result of this administrative structure.").

7 A few of these parties support third-party administration or state that the utilities would be burdened with administration of the CSI, but provide no support for these arguments.

of the reasons highlighted by a diverse group of parties in this case, SCE requests that the Commission allow SCE to administer all aspects of the CSI in its service territory.

2. Parties Support Lowering the kW Size Threshold for PBI

Consistent with SCE's recommendation, a number of parties to this proceeding comment that the kW size threshold for utilizing performance-based incentives should be lowered.[8] In its comments, SCE suggested that a threshold in the range of 10 kW to 30 kW would more appropriately reflect the threshold between small and large customers, and would generally correspond between residential and non-residential applications.[9] Other parties agree. For example, SDG&E and SoCalGas comment that the Commission should adopt PBI for all non-residential customers, utilizing a 30 kW split.[10] Likewise, PG&E states that it "would like to see more large (>30 kW) projects move toward a PBI incentive."[11] Certain non-utility parties also concur with this recommendation, and request an even lower threshold. DRA states:

> "DRA recommends that the Commission adopt a lower threshold for dividing systems between the PBI and the EPBB. While DRA supports the rationale set forth in the Draft CSI Proposal for relying on two different types of incentive structures, DRA has concluded that those rationales would be more effectively applied if 8 kW was the dividing point. An 8 kW dividing point would generally follow the dividing point between commercial and residential systems."[12]

When it adopted the CSI, the Commission placed a high value on providing incentives based on actual metered output, noting that a performance-based incentive structure would

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8 *See, e.g.,* DRA Comments, p. 4; PG&E Comments, p. 6; SDG&E Comments, p. 6; *see also* City and County of San Francisco Comments, p. 2 (characterizing the 100 kW threshold separating so-called "small" systems from "large" ones as arbitrary).

9 SCE Comments, p. 4. As was SCE's practice in its opening comments, SCE refers to the recommendation for a 30 kW threshold elsewhere in these reply comments. Based on the information presented in SCE's opening comments, setting the threshold in the range between 10 kW and 30 kW appears reasonable.

10 SDG&E Comments, p. 6; ASPv originally supported PBI for all systems over 30 kW. ASPv Comments, p.8. It appears that ASPv now supports a higher threshold.

11 PG&E Comments, p. 6.

12 DRA Comments, p. 4.

promote not only the installation of solar projects, but also their efficient operation.[13] Since that time, the Commission has reiterated its commitment to providing incentives based on actual energy production.[14] For the reasons stated in SCE's and other parties' Opening Comments, and to ensure that a meaningful percentage of CSI systems receive incentives based on actual system performance, SCE asks the Commission to lower the 100 kW threshold for application of performance-based incentives.

3. Parties Support Moving to a Full PBI in 2007

In its Opening Comments, SCE recommended that the Commission move fully to a PBI structure for systems greater than 30 kW, rather than adopt a transitional hybrid PBI. There is agreement among a number of parties that a complete and straightforward move to performance-based incentives should be made in 2007. For example, the Americans for Solar Power (ASPv) state:

> "ASPv believes the reasons for going directly to PBI rather than trying to construct a hybrid remain compelling. PBI is based solely on kWh output and so rewards production of electricity and protects ratepayer investment because payments are based on performance. Going directly to PBI rather than the hybrid will allow the Commission to avoid substantial administrative scale up and associated costs."[15]

The City and County of San Francisco also advocated the simplicity of a complete transition to PBI at program launch, stating "If a PBI eventually is adopted . . . then CCSF sees no concrete evidence to suggest that large solar customers would suffer any kind of financial 'shock' by suddenly transitioning to a fully PBI; therefore, in the interests of simplicity, an all-in-one transition should be followed."[16] The other utilities are also in agreement on these points.[17] In

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13 D.06-01-024, p. 21.

14 *See, e.g.,* Commissioner Chong's Concurrence to OIR 06-03-004 ("I ask all who are involved in this effort to keep the following in mind: incentives must lead to performance, administrative costs must be minimized and the program's results must be measured and reported periodically.")

15 ASPv Comments, p. 9.

16 City and County of San Francisco Comments, p. 5.

light of the Commission's support for performance-based incentives and diverse parties' comments that a transitional "hybrid" PBI is unnecessary, SCE asks the Commission to adopt a full transition to PBI for larger systems (>30 kW) in 2007.

B. The Commission Should Reject Specific Implementation Proposals that Conflict With CSI Goals

1. Performance-Based Incentives Should Not Be Confused with Payments Under a Power Purchase Arrangement

As proposed, the CSI is a continuation of statewide solar incentive programs to-date, including the SGIP and the Emerging Renewables Program (ERP).[18] As with the SGIP and the ERP programs, the incentives provided under the CSI are meant to encourage the installation of solar energy systems by defraying the cost of the installation through an established incentive payment. However, in consideration of information to date indicating that incentives provided to solar installations under the SGIP are not cost-effective, the Commission sought to introduce a performance element to incentives provided under the CSI. In so doing, the Staff proposed a PBI mechanism for larger solar installations.

A PBI design is merely the mechanism by which participating customers can offset the costs of installing a solar energy system. Consistent with this notion, SCE proposed that customers would be eligible to receive current incentive amounts based on the size of their solar electric generating facility, but these payments would be conveyed to them in the form of per-kWh payments based on the actual performance of their solar generating systems. The per-kWh rate would be calculated so as to pay eligible customers their full then-current capacity-based incentive over a 5-year period to the extent that they are successful in achieving an average

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Continued from the previous page

[17] *See* PG&E Comments, p. 6 ("It is actually simpler and administratively more straightforward for the incentive structure to be 100% PBI starting January 1, 2007."); SDG&E Comments, p. 7 (stating that a phased-in PBI is unnecessary, and that "the sooner and cleaner the change to PBI, the quicker the market place will respond and start to focus on delivery of energy over time.").

[18] D.06-01-024, pp. 3-4.

capacity factor of at least 20%.[19] The Staff Proposal is very similar to SCE's recommended approach, but for the addition of an increased 10% upside payment if metered output confirms higher system production. The Staff Proposal also establishes a "benchmark" capacity factor of 30% for tracking systems.

In response to the Staff Proposal, a number of parties appear to confuse the incentive structure of the CSI with a power purchase arrangement. This misconception has resulted in a number of recommendations, including recommendations to remove the "110% of expected performance" cap on PBI payments, recommendations to increase incentive amounts to account for the assumed contribution to peak resources, and recommendations to utilize time-differentiated incentive payments. The Commission should reject these proposals as unnecessary and inconsistent with a simple payment structure based on the current incentive level and expected performance utilizing a reasonable capacity factor.

The Commission should not remove the "10% upside payment" cap on PBI payments. A number of parties ask the Commission to remove the cap on the total incentive payment available under the PBI mechanism.[20] These parties argue that the 10% cap on the "upside payment" a customer could receive under PBI may stifle innovation or fail to reward high performing systems. However, as stated above, the CSI incentive structure is not a power purchase arrangement. As such, the incentive to install a solar energy system should not amount to an obligation to pay for all power produced during the payment term. Rather, participating customers should receive the equivalent of the then-current capacity-based incentive – not more – so long as their systems perform to a reasonable level.

Moreover, a cap is necessary to adequately reserve incentive funds by project and preserve the overall CSI budget over the ten-year program term. Without a cap, a small number of well performing projects may absorb a large amount of subsidies and cause a shortage in the

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[19] SCE's Pre-Workshop Comments on Performance-Based Incentives, p. 5 (February 24, 2006).

[20] ASPv Comments, p. 10; Joint Solar Parties Comments, p. 33; Joint Solar Parties Comments, p. 33; Energy Innovations Comments, p. 3.

CSI budget. A cap will not prevent innovation as long as a trigger mechanism is implemented with a time and MW component. Through time, and as the solar subsidy decreases in value, solar manufacturers and installers will need to find new innovative ways to lower the price of their systems while continuing to produce high quality products. The incentive to innovate is not going to be driven by paying excessive "up-side" subsidies to well performing systems. Instead, innovation will occur as subsidies are reduced.

The Commission should not increase incentives to pay for purported benefits to the system. A number of parties argue that incentives should be increased to account for on-peak production or contribution to California's goal of investing in renewable energy. For example, CARE states, "Because most solar energy is produced during peak hours of the day, DG suppliers should be compensated for providing important back-up capacity during those high stress times of the day."[21] Similarly, CrossBorder Energy proposes to modify the PBI calculation to include the temporal value of power produced by PV.[22] These recommendations are contrary to established Commission decisions and introduce an unnecessary element of complexity to the CSI incentive structure.

First, these parties again make the mistake of viewing the CSI as a means to compensate owners of solar systems for the claimed benefits that they provide. Second, these parties assume certain benefits to the system that have not been established. As the Commission stated in D.03-02-068, a distributed generation unit must meet specific requirements to provide transmission and distribution system benefits.[23] Specifically, the DG unit must be installed and operational in the right place, at the right time, and must provide the capacity size required to meet the utility's needs. Finally, the unit must provide physical assurance to ensure a real load reduction.[24] As such, it would be inappropriate to use the CSI incentive structure to "compensate" customers

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[21] CARE Comments, p. 4.
[22] Crossborder Energy Comments, p.3, pp.6-7.
[23] D.03-02-068, p. 18.
[24] *Id.*; See also Ruling and Scoping Memo for R.04-03-017, p. 8.

through higher incentives for purported benefits that are contrary to established Commission authority.

Further, participating customers already receive a significant benefit in bill savings for energy produced by their solar energy systems. If a customer takes service under a time-of-use (TOU) rate, this benefit is increased for production during peak periods.[25] Thus, to the extent allowed by metering and by tariff design, the participating customer is already fully compensated for the value of energy produced. As such, modifications to the incentive rate to provide higher incentives for western facing systems or "on peak" production is unnecessary. Performance-based incentives are predicated on the notion that the system is producing kWh. Customers control all aspects of their system's installation and the rate schedule under which they take service. Customers may face the solar panels to allow production to coincide with system peak and choose to be on a TOU schedule to create higher bill savings. Participating customers, thus, have a choice to place the solar panels in a southern direction (and increase their kWh for purposes of their PBI payment), or point their panels in a western direction (and increase their bill savings for on-peak production). Choice of installation characteristics and rate schedule allow customers to maximize the overall value of their systems in accordance with their lifestyle and energy production needs.

The Commission should not implement time-differentiated incentives payments. The Staff proposed a flat incentive rate paid over a five-year term. A few parties responded that incentive payments should be time-differentiated. As mentioned above, the CSI incentive is not a power purchase arrangement and is not meant to compensate customers for power produced. The purpose of a PBI is to pay a subsidy amount over time, assuming a reasonable level of performance. Customers may receive time-differentiated benefits if they choose to orient their

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[25] This is in addition to the substantial NEM subsidy received by customers who are allowed to offset their full retail rate and avoid Standby and Departing Load charges.

panels to increase on-peak bill savings. The Commission need not, and should not, introduce the complexity of time-differentiated incentive payments.[26]

2. The Commission Should Not Adopt Detailed Output Metering Communication Requirements or Outsource Metering and Data Collection to a Third Party

In its Opening Comments, Fat Spaniels Technologies, Inc. (FST) states that metering requirements for generation output must be clearly defined in order to obtain useful and valuable data. FST goes on to recommend eleven metering requirements for generation output such as comprehensive data collection and remote monitoring capabilities that should be considered for inclusion into the CSI program. As stated in SCE's opening comments,[27] communication functionality will be integrated into the overall AMI metering requirements in the utilities' pending AMI proceedings. In fact, *all* of FST's recommended metering requirements will be included in SCE's AMI meter capability with the exception of the BTU to kWh conversion capability. The AMI back-end systems will have the capability to calculate this value for customer presentation if the Commission requires it in the AMI proceeding. FST's proposal does not appear to consider SCE's expected deployment of AMI communication systems towards the end of 2009. Thus, FST's recommendation is not aligned with the eventual roll out of AMI and could result in stranded costs for the customer and all ratepayers.

FST also proposes that the Commission should require a 24 month phase-in of remote monitoring of generation output meters for all solar energy systems, regardless of size. However, if any particular remote metering system is mandated now, there is a substantial risk that the remote metering system will not be compatible with AMI systems when those systems are deployed. The risk of metering system incompatibility is addressed on pages 19-20 of SCE's

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[26] CARE has suggested that all NEM customers should be placed on a TOU rate. SCE does not believe customers should be forced on a TOU rate. It is more appropriate to provide customers with the choice to opt onto the most appropriate rate schedule for their needs.

[27] SCE's Comments, p. 20.

Opening Comments and supports why web-based reporting and communication features should be purely optional for customers at this time. However, SCE will work with customers who request advanced metering to meet their information and communication needs.

SCE fully agrees with FST that system owners should not be allowed to self report their meter data. However, SCE does not agree that a third party verifier of generation data is in a better position than the utilities to assure that generation data is reported accurately. Further, as stated in SCE's Opening Comments, the utilities are in the best position to administer all aspects of the CSI program, including metering and data collection. For these reasons, CSI administration – including metering and data collection – should not be outsourced to a third party.

3. The Commission Should Not Substitute Internal Inverter Meters for Separate Revenue Grade Metering

The Staff proposes to require separate revenue grade meters for all CSI installations. SCE strongly supports this requirement. However, several solar trade groups argue that inverter meters are either acceptable for all non-PBI systems or inverter meters are acceptable for solar energy systems below 100kW. ASPv suggests that the Commission adopt an inverter metering requirement that is accurate to plus or minus 5% for systems under 100 kW, despite the fact that the current CPUC requirement for meter acceptance is plus or minus 2% for all existing utility customers.[28] ASPv does not provide any technical support for their proposal to deviate from the current CPUC standards. Moreover, some of the commenting parties fail to recognize the importance of integrating the generation output meter with utility data systems and with utility supply and support organizations. Simply requiring a "utility grade" or "revenue grade" meter is not sufficient by itself, as these requirements deal only with meter technical accuracy. Metering requirements (used to measure net generator output) must ensure not only the requisite degree of

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[28] ASPv Comments, p. 28.

reliability and accuracy, but also that the meter requirements are compatible with existing utility systems for data collection and processing.[29] For these reasons, SCE reiterates its recommendation that utilities should be allowed to determine the best fit revenue grade metering that will serve the data collection and incentive payment needs of the program.[30]

4. The Commission Should Not Raise The Incentive Level Generally or Provide Higher Incentives for Retrofit Installations

The Staff Proposal recommended that the PBI in year one for taxable commercial entities be set at $0.17/kWh for five years based on a 20% capacity factor. A number of parties suggest that the Commission should adopt significantly higher incentive payments. For instance, ASPv's PBI proposal starts with a $0.492/kWh equivalent to a $4.34/watt incentive[31] in 2007 and lowers over time. Golden Sierra Power's proposal recommends paying $0.36 - $0.40 per kWh for five years, or $3.15 - $3.50 per watt.[32] Increasing the incentive level in this manner will result in fewer installations within the CSI budget, and/or gross overspending throughout the program term. If ASPv's suggested payment method were applied to the expected annual MW installations, SCE estimates the overall CSI budget would have to be raised to $3.9 billion.[33] If GSP's suggested incentive were applied to all 2,600 MW of CSI installations, the budget would need to be raised to $8.9 - $9.1 billion.[34] It is imperative that the PBI incentive level be set such that the $2.8 billion budget is maintained.

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29 Further, as SCE stated in response to the Staff's questions, inverter metering may not be readily accessible by the program administrator, may be subject to being "reset" by inverter operation or by the customer, and may be subject to tampering if used as the basis of PBI payments. Some inverters only retain metering information for short periods of time, and inverters can trip off, thereby losing any data recorded. For larger systems, there may be more than one inverter.

30 SCE Comments, pp. 18-19.

31 Assumes a 20% capacity factor.

32 Assumes a 20% capacity factor.

33 In estimating this impact, SCE assumed the MW installed per year is equivalent to that projected in Appendix A to D.06-01-024, multiplied by the incentive levels proposed by ASPv. The $3.9 billion impact assumes 100% of projects are paid via the suggested PBI schedule.

34 GSP does not appear to propose a declining incentive structure. These numbers assume a level incentive over time. The $8.9-9.1 billion impact assumes 100% of projects are paid via the suggested PBI schedule as suggested by GSP, p. 8.

Further, incentives should not be raised for retrofit applications. In its proposal, the Staff asked whether incentives should be lowered for new construction to reflect the lower cost of installing solar power on a new building.[35] SCE responded that, at this time, SCE does not recommend that the program take into consideration lower incentive levels for installations on new buildings. Such a requirement would add a layer of complexity for a benefit that is not yet ascertained or quantified. The flipside – *i.e.*, raising incentives for retrofit applications – should not be adopted either. Incentives should be set based on the declining rebate schedule and trigger mechanism. The incentive level should not be raised for some projects simply because some projects tend to be more expensive than others. The purpose of the program is reaching 2,600 MW under a budget constraint. If the CSI begins paying higher amounts based on individual project characteristics the budget will be impacted, and an unnecessary level of complexity will be introduced.

5. The Commission Should Not Adopt Varying Incentive Levels in Different Utility Service Territories

ASPv proposes offering different incentive levels in different utility territories. ASPv provides no justification for this proposal.[36] SCE is opposed to the general notion of differentiating incentive levels by utility service territory. Because the CSI is a statewide program, incentives should be available to all customers in the State under the same set of rules and principles. Thus, if a customer meets certain installation and design criteria in Northern California, he or she should get the same incentive as a customer meeting the same criteria in Southern California.

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35 *See, e.g.*, Appendix A to SCE's Comments, Question B.2.
36 ASPv Comments, p. 13.

6. The Commission Should Not Lower the Benchmark to Account For Poor Anticipated Output

A few parties appear to propose lowering the benchmark for optimal design and installation to guarantee that customers receive the equivalent of the current capacity-based incentive. For example, the Joint Solar Parties recommend that the EPBB design factor should be based on horizontal orientation with 5% shading losses.[37] The Commission should reject this and similar recommendations. Lowering the benchmark will reduce the cost-effectiveness of CSI installations and purported ratepayer benefits.

In consideration of information to date indicating that incentives provided to solar installations under the SGIP are not cost-effective, the Commission sought to introduce a performance element to the CSI incentives. The idea is not to increase the incentive to such a level that the performance characteristics are insignificant, or reduce the benchmark for performance such that systems can continue to operate in the same manner and still receive a full capacity-based incentive. If the bar for performance is set too low, the EPBB is essentially no better than the non cost-effective capacity-based incentive program that is already in place. The purpose of EPBB is to improve upon capacity-based incentives by only paying full incentives to those systems that are installed appropriately and provide a confident expectation of performance.

Similarly, the Commission should not reduce the benchmark capacity factor for PBI. A few parties claim that a 20% capacity factor is too high and that in many geographical areas, systems will not achieve this amount of kWh. These comments are contrary to parties' testimony and comments in R.04-07-013. During earlier phases of the DG OIR, many solar parties made claims as to how many kWh their systems could produce, and capacity factors that could be achieved. Parties to this proceeding have stated in comments and testimony that solar PV installations typically perform at an 18%-22% capacity factor, and may even be as high as

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[37] Joint Solar Parties Comments, p. 21.

65%.[38] A 20% capacity factor is within the range of figures identified by Itron and these parties. In addition, SCE expects that with greater attention to system performance created by a PBI structure, further improvements in panel orientation and location can be achieved. Thus, SCE maintains that the 20% capacity factor is reasonable for use in designing a PBI structure.[39] In any event, SCE agrees with SDG&E that whatever capacity factor is chosen for PBI should also be applied in any cost-benefit analysis of the CSI.

7. The Commission Should Not Adopt a Declining Incentive Structure Solely Based on Installed MWs

The trigger mechanism should contain both a time component and a MW component to keep the CSI on track to reach the goal of 2,600 MW in 10 years. Several parties suggested alternative trigger mechanisms including a PV market assessment group, a MW target with potential adjustment between levels, or having the option to increase incentive levels from year to year. None of these options will preserve the CSI budget over time. A declining incentive structure should do three things: (1) ensure that the finite CSI budget is preserved over the ten-year life of the program; (2) ensure that the incentive level ramps down over time to create incentives for the solar industry to lower costs; and (3) reward customers who would purchase solar systems sooner rather than later to assist in keeping the program on track to reach the MW goal. The only way to reach these three goals is to have both a time and MW component built into the trigger mechanism. Establishing a "PV Market Assessment Group" to analyze and set incentive levels based on market activity will not provide a clear and transparent incentive reduction plan. Further, adopting a trigger based only on installed MW will not provide any

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[38] *See, e.g.*, ASPv Prepared Testimony on the Itron Report, Exh. LSS-8 (assuming a 20%-22% capacity factor based on a midpoint between the weighted capacity factor for the CPUC's Self Generation Incentive Program (18%) and the annual capacity factor for PV estimated by Wenger, et al. (22%)); ASPv Motion for Adoption of Performance Based Incentives (11/10/05) (assuming 21% capacity factor); Vote Solar Comments on Staff Solar Report (7/7/05), p. 15 (assuming an 18% capacity factor); ASPv & PV Now Joint Comments on Staff Solar Report (7/7/05), Att. A (assuming 65% capacity factor).

[39] As reflected below, SCE proposes moving to a true "system AC" rating. According to Tom Hoff, a 20% capacity factor is consistent with such a rating. *See* Joint Solar Parties Comments, Appendix F (Tom Hoff, "Expected Performance Buydown (EPBB) Incentive Structure: Rationale and Implications.")

incentive to reduce installed costs, and may result in an "incentive cliff" at the end of the 10-year program term. For these reasons, SCE asks the Commission to reject these recommendations and adopt a declining incentive structure with both a time and MW component.

8. The Commission Should Not Substitute a "Warranty Approach" for PBI

The City & County of San Francisco suggests substituting a warranty approach for a PBI mechanism, reasoning that a PBI approach puts too much risk of system inadequacies or failure on a system owner. The Commission should reject this recommendation as an alternative to a PBI because it provides no measure of protection to the ratepayers who are subsidizing CSI installations. Aside from the benefit to the consumer, the warranty approach lends no improvements over capacity-based incentives already in place. A customer would be eligible to receive the maximum incentive for any system installed, regardless of whether it produces energy. In addition, if the system were to fail, ratepayers would have no way to recover the money they invested because the warranty is given to the customer, not all ratepayers.

C. The Commission Should Adopt a Clear and Simple Method for Assigning System Rating for Purposes of Incentive Payment and Record Keeping

In response to the Staff's questions, SCE recommended that a workshop be convened to develop a better, verifiable, and more transparent rating system.[40] A number of parties commented on inconsistencies in using the CEC-AC rating system versus a "true system AC" rating system.[41] For example, the Joint Solar Parties attached a whitepaper by Tom Hoff noting the need to obtain consistency in ratings, prices and capacity factors.

Based on these comments, SCE reiterates its recommendation that the Commission establish a sound method to estimate a solar generating system's dependable peak AC capacity rating for purposes of reserving incentive funds. For measurement and evaluation, SCE

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[40] *See* SCE Comments, Appendix A, SCE Response to Question C.10.

[41] Consumer Federation of California Comments, p. 20; ASPv Comments, p. 12; Joint Solar Parties, p. 7, footnote 4, pp. 27-29.

recommends that the Commission rely on “True system AC” or a “verified rating” which can only be determined through system output metering. Such evaluation is important as it is the actual kW AC and kWh AC that are delivered to the customer’s service panel or exported to the electrical system.

SCE recommends the methodology used for estimating the system rating be simple to understand, easy to administer and be based on field verifiable information. Any such rating methodology should begin with the ASTM 1036 commonly referred to as the Standard Test Conditions (STC) Power maximum peak rating. This rating is a peer reviewed national and international standard to which equipment is listed, labeled, tested and guaranteed. The benefits of establishing a rating system that is grounded in STC are threefold: First, the STC rating is stamped on the panels. Thus, if ownership of the solar system changes, or system capacity ever needs to be verified, the basis for the rating will always be available. Second, as mentioned above, STC ratings are established under national and international standards. Thus, adopting a methodology grounded in STC ratings will reduce or eliminate the burden on (or gaming opportunities of) manufacturers to re-rate their products based on the CEC-PTC. Third, consistent use of STC ratings systems will provide a measure of protection to the customer. Manufacturers test each panel to the STC as a measure of quality assurance, and solar panel warranties are typically based on STC, not CEC-PTC. Thus, customers will be better informed as to the product they are receiving.

Once the STC power DC rating is known, a simple rule of thumb can be used to determine the system AC rating. The typical peak array DC output can be estimated by multiplying the solar panel STC Power rating that is on each panel by the number of panels of the same rating. The solar array STC rating would then be a summation of the various panel types that comprise the array. This number should then be multiplied by a fixed percentage which accounts for factors such as inverter efficiency, panel rating tolerance, soiling, ambient temperature, wiring losses, and other factors. The CEC’s Guide to Photovoltaic Design and

Installation recommends a rule-of-thumb value of 67%.[42] The resulting number would be the estimated "system rating" or system AC for purposes of calculating the EPBB or PBI set-aside and payment cap.[43] SCE supports this methodology to estimate system rating as simple, verifiable, and transparent. SCE welcomes the opportunity to provide further information on this methodology in the context of a workshop.

D. SCE Supports Inspections for All Systems

A number of parties recommend that all systems be inspected at the time of installation and incentive payment, regardless of size.[44] Although SCE recommended that systems under 30 kW need not receive verifications, SCE supports the proposal to inspect all installations to ensure ratepayer dollars are spent on confirmed installations that are consistent with the size and design characteristics attested to during the application process. A number of parties have also indicated that the estimated rating used for EPBB incentive payments should be verified based on metered output for at least one year.[45] SCE agrees that revenue quality measurement data of actual system output is the best method to verify installed system performance after a system is installed. As indicated in its Opening Comments, SCE maintains performance-based incentives should be implemented for all systems greater than 30 kW. If incentives for those systems are based on the actual measured output, the extensive modeling and "verified rating" protocol described in the Staff Proposal – or even more complex verifications over the course of a year – will be unnecessary. SCE certainly supports metering and data collection, as well as accurate

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[42] CEC Guide to Photovoltaic Design and Installation, p. 10, et seq. The NREL program PVWatts uses 77%, and the Clean Power Estimator appears to use a factor of 85%. While SCE endorses the CEC's 67% value as conservative, SCE is aware that the Commission may opt to incorporate another fixed percentage.

[43] If the resulting number is larger than the rating on the system's inverter, the system rating for purposes of incentive payment should be limited by the rating on the inverter. An oversized array cannot squeeze its output through an undersized or overloaded inverter. Conversely, an undersized array will not provide the customer with the expected power output. See Golden Sierra Comments, p. 4.

[44] Consumer Federation of California Comments, pp. 22, 25; PG&E Comments, p. 8; SDREO Comments, p. 4; SDG&E, pp. 9-10.

[45] See Clean Power Markets Comments p. 2; see also SDREO Comments, p. 4

incentive payments. Such goals can be accomplished in a simpler and more efficient manner with Performance-Based Incentives.

E. The Commission Should Not Expand the SDREO Solar Hot Water Heating Pilot at This Time

A few parties commented that SDREO's solar hot water heating (SWH) program should be adopted on a statewide basis, rather than as a pilot in SDG&E's territory.[46] Parties base this request on the unsupported assertion that implementing the SWH Pilot Program only in SDG&E's territory will lead to decreased solar water heating system installations in the other service territories. The Commission should reject this recommendation.

In adopting the CSI, the Commission was hesitant to include a solar hot water heating component based on prior experience with incentives for solar hot water heaters. The Commission stated, "the impact of [previous] incentives was mainly to increase the cost of the technology, which suggested that sellers received a windfall profit and that public funds were not required to motivate product sales."[47] The Commission was thus cognizant of the results of previous incentives for SWH, and accordingly, proceeded cautiously stating, "In order to avoid a recurrence of the type of problem we observed in the past, the CSI program should include incentives for solar water heaters as a pilot program, which we may monitor and modify as necessary."[48] The Commission then made clear the SWH pilot was to provide SWH rebates to residential, commercial, and industrial customers in SDG&E's territory only. A limited pilot in SDG&E's service territory will allow the Commission to assess the need for an SHW program and the pilot program's cost-effectiveness before potentially expending unnecessary public funds a second time. Considering historical experiences, this is the appropriate and prudent course.

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46 SCE understands that SDREO's SWH plan also proposes statewide implementation at program outset.
47 D.06-01-024, p. 13.
48 *Id.*

F. Incentives for Non-PV Solar Technologies

SCE endorses the general principle that the amount of fossil fuel energy displaced by the solar-created heat or chilling should be used to determine the value of the solar systems useful output. This displaced fuel method can be used effectively to determine a performance based incentive in $/net BTU delivered and can be used for Solar Thermal Heating, Solar Cooling,[49] Solar Ventilation and Solar Thermal Chilling systems.

For systems that create electric power, SCE concurs generally with Solargenix's comment that the incentive payment rate should be the same for all technologies that create electricity as their end product. Having different incentives implies that a winning and losing technology has been determined. All solar electric generating technologies should be treated equally. Higher performing technologies in terms of cost and output will be rewarded by the marketplace. However, it is still critical that incentives and performance expectations be reviewed and adjusted as more systems and different technologies come on-line. SCE would encourage the Commission to perform progress reviews and to adjust incentives downward appropriately as performance and technologies improve.

For hybrid and "combined technology" systems, SCE recommends against allowing any design that uses a single prime mover and generator that can receive input from both fossil fuel and solar energy to participate in the CSI program. It is not possible to sort out the electricity generated by solar or fossil fuel for purposes of determining an eligible incentive, since the output is all at the same voltage and frequency. SCE, however, does support allowing combined technology facilities that have separate generators to participate in the CSI, so long as both the eligible solar generator and the ineligible fossil-fired generator are separately metered ensuring that only the solar generator receives the CSI incentive.

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[49] Solargenix notes that the market for solar cooling will be minimal and is highly subjective and therefore should not in itself be part of the subsidy program. Solargenix Comments, p. 4.

III.

CONCLUSION

SCE appreciates the opportunity to comment on the Staff's Proposal for implementing the California Solar Initiative. For the reasons stated above and in SCE's Opening Comments, SCE respectfully asks the Commission to adopt the following recommendations to advance the value of the California Solar Initiative (CSI), achieve the Program goals, and protect the interests of participating customers and all ratepayers.

- The Commission should enlist the utilities to administer all aspects of the CSI program in their territories.
- The Commission should lower the kW size threshold between the Expected Performance-Based Buydown (EPBB) and Performance-Based Incentive (PBI) mechanisms to no higher than 30 kW.
- The Commission should move fully to a PBI structure in 2007, rather than adopt a "hybrid" phased-in approach.
- The Commission should include geographical location in the EPBB assessment to encourage the installation of systems with maximum value to ratepayers.
- The Commission should retain a declining incentive structure based on both MWs reserved and on the passage of time to avoid the "start and stop" of incentives and ensure that the finite CSI budget is preserved over the ten-year life of the program.
- The Commission should allow the utilities to determine best fit metering to ensure cost-effective administration and limit stranded costs.
- The Commission should reject recommendations to structure the PBI incentives as if they were payments for power deliveries.
- The Commission should not adopt detailed metering communication requirements or outsource metering and data collection to a third party. Such proposals will unnecessarily increase program costs.

- The Commission should reject parties' proposals to raise incentives or reduce the cost-effectiveness of the program.
- The Commission should adopt a clear and concise method for assigning system rating for purposes of incentive payment and record keeping.
- The Commission should not expand the SDREO solar hot water heating pilot to all service territories at this time.

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May 26, 2006

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of REPLY COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON STAFF PROPOSAL FOR CALIFORNIA SOLAR INITIATIVE DESIGN AND ADMINISTRATION 2007-2016 on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

☐ Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

☐ Placing the copies in sealed envelopes and causing such envelopes to be delivered by hand or by overnight courier to the offices of the Commission or other addressee(s).

☐ Placing copies in properly addressed sealed envelopes and depositing such copies in the United States mail with first-class postage prepaid to all parties.

☐ Directing Prographics to place the copies in properly addressed sealed envelopes and to deposit such envelopes in the United States mail with first-class postage prepaid to all parties.

Executed this **26th day of May, 2006**, at Rosemead, California.

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